UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,153	01/16/2001	Ghassan Naim	042933/373921	2840

10949 7590 02/01/2011

Nokia Corporation and Alston & Bird LLP
c/o Alston & Bird LLP
Bank of America Plaza, 101 South Tryon Street
Suite 4000
Charlotte, NC 28280-4000

EXAMINER	
NGUYEN, TOAN D	
ART UNIT	**PAPER NUMBER**
2472	

MAIL DATE	DELIVERY MODE
02/01/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/759,153	NAIM ET AL.	
	Examiner	Art Unit	
	TOAN D. NGUYEN	2472	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/12/10*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,7-9,13-16 and 18-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7-9,13-16 and 18-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-4, 7-9, 13-16, and 18-75 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-4, 7-9, 13-16, 18-30, 33-43, 45-49, 51-55, and 57-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forssell Mica (EP 1006695) in view of Becker et al. (US 6,735,188).

For claim 1, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

monitoring a length of a data queue in a first network element as an indication of future need of communication resources in a first network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element (the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4); and

the communications resources based for a transmission between the first network element and a second network element based on the indication (the mobile station (the first network element means) transfer delay sensitive data to the network (a second network element means) and the CV' is different than 0 (based on the indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose allocating the communications resources. In an analogous art, Becker et al. disclose allocating the communications

resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the allocating the communications resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 3, Forssell Mica discloses wherein the indication comprises information about a transmit buffer of the first network element (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 4, Forssell Mica discloses wherein the indication comprises information on the additional resources needed for said first network element (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 7, Forssell Mica discloses wherein the first network element is a mobile station and the second network element is a base station of a wireless communication

network (the mobile transmitted RLC/MAC data block to the network (base station means), paragraph [0061], lines 1-2).

For claim 8, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a plurality of first stations (mobile data terminals 151 means, paragraph [0007], line 8);

a second station connected to said plurality of first stations through a plurality of communication links (mobile data terminals 151 via base station 152 means, paragraph [0007], line 8);

a controller control of the communication resources among the communications links, wherein the control being separate and independent from the first stations (figure 2, a radio resource control (RRC) layer 207, protocol layer between the mobile station MS and the base station subsystem BSS (the control being separate and independent from the first stations means), paragraph [0011], lines 1-5),

said controller control of the communication resource is performed in accordance with information transmitted from the first stations and wherein the information from each of the first stations comprises a data block embedding a coded value of a lengths of a data queues in each of the first stations (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information (the information means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (said controller

control of the communication resource means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4), and the controller is configured to use the length of a data queue is an indication of future of communication resources for each of the first station (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the length of a data queue is an indication of future of communication resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3, and when the CV' is set to "0", the network (the controller means) give the next N uplink transmit permission to some other mobile station/stations (the first stations means, paragraph [0062], lines 3-5).

However, Forssell Mica does not expressly disclose a controller configured to control allocation of the communication resources. In an analogous art, Becker et al. disclose a controller configured to control allocation of the communication resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the controller configured to control allocation of the communication resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the

mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 9, Forssell Mica discloses wherein said controller is part of said base station (figure 2, a radio resource control (RRC) layer 207 located in the base station subsystem BSS, paragraph [0011], lines 1-5).

For claim 13, Forssell Mica discloses wherein each of said first station transmits a transmission comprising a plurality of data blocks, and wherein the coded value of the length of a data queue of one of the first stations is provided in each of said data blocks in the transmission associated with said one first station (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4).

For claim 14, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a controller configured to (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5)

control of communication resources for at least one mobile station, wherein the control is based upon queue length information received from the mobile station that is embedded in a data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (the control of the communication resource means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

use the queue length information as an indication of future need of communication resources for the mobile station (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the queue length information as an indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose a controller configured to control allocation of the communication resources. In an analogous art, Becker et al. disclose a controller configured to control allocation of the communication resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data

queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the controller configured to control allocation of the communication resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 15, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a processor configured to (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5)

a code representative of the length of a data queue embedded in a data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (a processor means) in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of the length of a data queue

embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

transmit data packets and said data block with said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encode a data block. In an analogous art, Becker et al. disclose encode a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encode a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement

for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 16, Forssell Mica discloses wherein the monitoring comprises receiving data packets and wherein each of the data packets comprises the indication of the length of the data queue is sent in every packet (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element (the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4).

For claim 18, Forssell Mica discloses wherein the processor receives a plurality of data packets and each of said data packets comprises said queue length information (the mobile station transfer delay sensitive data to the network (the processor means) and the CV' is different than 0 (the queue length information as an indication means) the network interprets that the mobile station has more data blocks to be transmitted and

the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 19, Forssell Mica discloses wherein the transmitter is further configured to transmit the indication in each data packet that is transmitted from the transmitter (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the indication in each data packet means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 20, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue in a mobile station, wherein the length of the data queue is embedded in a data block from the mobile station (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (a processor means) in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of the length of a data queue embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4); and

controller means for controlling of communication resources (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], lines 1-5), and

the controller means is configured to use the queue length information as an indication of future need of communication resources for the mobile station (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the length of a data queue is an indication of future of communication resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3, and when the CV' is set to "0", the network (the controller means) give the next N uplink transmit permission to some other mobile station/stations (the first stations means, paragraph [0062], lines 3-5).

However, Forssell Mica does not expressly disclose decoder means for decoding a data in a mobile station, wherein said decoder means is configured to decode and provide information for the mobile station to the controller means. In an analogous art, Becker et al. disclose decoder means for decoding a data in a mobile station, wherein said decoder means is configured to decode and provide information for the mobile station to the controller means (the remote units 108A-108N encode the messages before they are sent via the reservation channel 140 to the hub station 104. The hub station 104, in turn, decodes the messages, col. 9, lines 48-51).

One skilled in the art would have recognized the decoder means for decoding a data in a mobile station, wherein said decoder means is configured to decode and provide information for the mobile station to the controller means, and would have

applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to decode the messages, (col. 9, line 51).

For claim 21, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

data queue means for receiving data packets (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, paragraph [0068], lines 1-2);

a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block; and transmitter means for transmitting said data packets and said data block to a network element, wherein said code is included in the data block as a field (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encoder means for encoding a data block. In an analogous art, Becker et al. disclose encoder means for encoding a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encoder means for encoding a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 22, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue in a first network element, wherein the length of the data queue is embedded in a data block and the data queue is configured to receive the data block; and causing transmission of data packets comprising a field comprising said code to a second network element, wherein said code is used when allocating communication resources for a transmission between the first network element and the second network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is useable by the second network element as an indication of future need of communication resources in the first network element (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign

(allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encoding a data block. Becker et al. disclose encoding a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encoding a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 23, Forssell Mica discloses wherein the encoding of the code further comprises encoding information about a transmit buffer of the first network element (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 24, Forssell Mica discloses wherein the encoding of the code further comprises encoding information on additional resources needed by said first network element (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and

the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 25, Forssell Mica discloses wherein the first network element comprises a mobile station and the second network element comprises a base station of a wireless communication network (the mobile transmitted RLC/MAC data block to the network (base station means), paragraph [0061], lines 1-2).

For claim 26, Forssell Mica discloses wherein the controller is further configured to a code representative of the queue length information for mobile station (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (the controller means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

However, Forssell Mica does not expressly disclose decode the information for the mobile station. In an analogous art, Becker et al. disclose decode the information for the mobile station (the remote units 108A-108N encode the messages before they are sent via the reservation channel 140 to the hub station 104. The hub station 104, in turn, decodes the messages, col. 9, lines 48-51).

One skilled in the art would have recognized the decode the information for the mobile station, and would have applied Becker et al.'s allocation resource in Forssell

Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to decode

For claim 27, Forssell Mica discloses wherein the code comprises information about a transmit buffer for the mobile station (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 28, Forssell Mica discloses wherein the code comprises information on the additional resources needed by each of the at least one mobile (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 29, Forssell Mica discloses wherein the code further comprises information about a transmit buffer for the apparatus (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 30, Forssell Mica discloses wherein the code comprises information on the additional resources needed by said apparatus (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile

station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 31, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

monitoring a length of a data queue in a first network element as an indication of future need of communication resources in a first network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element (the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4); and

the communications resources based for a transmission between the first network element and a second network element based on the indication (the mobile station (the first network element means) transfer delay sensitive data to the network (a second network element means) and the CV' is different than 0 (based on the indication means) the network interprets that the mobile station has more data blocks to be

transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose allocating the communications resources. In an analogous art, Becker et al. disclose allocating the communications resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the allocating the communications resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 32, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue in a first network element, wherein the length of the data queue is embedded in a data block and the data queue is configured to receive the data block; and causing transmission of data packets comprising a field comprising said code to a second network element, wherein said code is used when allocating communication resources for a transmission between the

first network element and the second network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is useable by the second network element as an indication of future need of communication resources in the first network element (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encoding a data block. In an analogous art, Becker et al. disclose encoding a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encoding a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 33, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a processor configured to (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5)

monitoring a length of a data queue in a first network element as an indication of future need of communication resources in a first network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element (the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or

part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4); and

the communications resources based for a transmission between the first network element and a second network element based on the indication (the mobile station (the first network element means) transfer delay sensitive data to the network (a second network element means) and the CV' is different than 0 (based on the indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose allocating the communications resources. In an analogous art, Becker et al. disclose allocating the communications resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the allocating the communications resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 34, Forssell Mica discloses wherein the processor is further configure to monitor information about a transmit buffer of the first network element (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 35, Forssell Mica discloses wherein the processor is further configure to monitor information the additional resources needed for said first network element (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 36, Forssell Mica discloses wherein the first network element comprises a mobile station and the second network element comprises a base station of a wireless communication network (the mobile transmitted RLC/MAC data block to the network (base station means), paragraph [0061], lines 1-2).

For claim 37, Forssell Mica discloses wherein the processor is further configured to perform the monitoring by receiving data packets and wherein each of the data packets comprises the indication of the length of the data queue is sent in every packet (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element

(the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4).

For claim 38, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

monitoring means for monitoring a length of a data queue in a first network element as an indication of future need of communication resources in a first network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6), wherein the indication comprises a coded value of the length of the data queue in the first network element , and wherein the length of the data queue is embedded in a data block from the first network element (the RLC/MAC data block include information (the indication means) on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), a coded value of the length of the data queue means), paragraph [0061], lines 1-4); and

the communications resources based for a transmission between the first network element and a second network element based on the indication (the mobile station (the first network element means) transfer delay sensitive data to the network (a second network element means) and the CV' is different than 0 (based on the indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose allocating means for allocating the communications resources. In an analogous art, Becker et al. disclose allocating means for allocating the communications resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the allocating means for allocating the communications resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 39, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

controlling of communication resources for a mobile station by a controller (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5), wherein the controlling is based upon queue length information received from the mobile station that is embedded in a data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (the control of the communication resource means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

using, by the controller, the queue length information as an indication of future need of communication resources for the mobile station (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the queue length information as an indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose controlling allocation of the communication resources. In an analogous art, Becker et al. disclose controlling allocation of the communication resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The

information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the controlling allocation of the communication resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 40, Forssell Mica discloses by the controller, a code representative of the queue length information for mobile station (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (the controller means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

However, Forssell Mica does not expressly disclose decoding the information for the mobile station. In an analogous art, Becker et al. disclose decoding the information for the mobile station (the remote units 108A-108N encode the messages before they are sent

via the reservation channel 140 to the hub station 104. The hub station 104, in turn, decodes the messages, col. 9, lines 48-51).

One skilled in the art would have recognized the decoding the information for the mobile station, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to decode the messages, (col. 9, line 51).

For claim 41, Forssell Mica discloses receiving a plurality of data packets and each of said data packets comprises said queue length information (the mobile station transfer delay sensitive data to the network (the processor means) and the CV' is different than 0 (the queue length information as an indication means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 42, Forssell Mica discloses wherein the decoding of code comprises decoding information about a transmit buffer for the mobile station (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 43, Forssell Mica discloses wherein the decoding of the code further comprises decoding information the additional resources needed for said first network

element (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 45, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

controlling means for controlling of communication resources for a mobile station (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5), the controlling means for performing the allocation based upon queue length information received from the mobile station that is embedded in a data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network (the control of the communication resource means) in the RLC/MAC header (the information or CV' value or the length of the data queue, is embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), wherein

the controlling means is configured to use the queue length information as an indication of future need of communication resources for the mobile station (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (the queue length information as an indication means) the network interprets that the mobile

station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose controlling allocation of the communication resources. In an analogous art, Becker et al. disclose controlling allocation of the communication resources (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17).

One skilled in the art would have recognized the controlling allocation of the communication resources, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

For claim 46, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue embedded in a data block in a first network element; and transmitting data packets and said data block with said code included in the data block as a field to a second network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number

of RLC data blocks remaining for the current uplink, (paragraph [0057], lines 5-6), the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the second network element as an indication of future need of communication resources in the first network element (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encoding a data block. In an analogous art, Becker et al. disclose encoding a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encoding a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink

transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 47, Forssell Mica discloses wherein said transmitting of said data packets comprises transmitting a plurality of data packets, and wherein each of said data packets comprises said code (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 48, Forssell Mica discloses wherein the encoding of the code further comprises encoding information about a transmit buffer for the first network element (the mobile station checks in step 510, whether the RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 49, Forssell Mica discloses wherein the encoding of the code further comprises encoding information on additional resources needed by said first network

element (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 50, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue embedded in a data block in a first network element; and transmitting data packets and said data block with said code included in the data block as a field to a second network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, (paragraph [0057], lines 5-6), the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the second network element as an indication of future need of communication resources in the first network element (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of

communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encoding a data block. In an analogous art, Becker et al. disclose encoding a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encoding a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 51, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of the length of a data queue embedded in a data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the

network (a processor means) in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of the length of a data queue embedded in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

transmitting means for transmitting data packets and said data block with said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encode a data block. In an analogous art, Becker et al. disclose encode a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encode a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel

encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 52, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a processor configured to (figure 2, a radio resource control (RRC) layer 207, paragraph [0011], line 5)

a code representative of a length of a data queue in the apparatus, wherein the length of the data queue is embedded in a data block and the data queue is configured to receive the data block; and transmit data packets comprising a field comprising said code to a network element, wherein said code is used when allocating communication resources for a transmission between the apparatus and the network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the network element as an indication of future need of communication resources in the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encode a data block. In an analogous art, Becker et al. disclose encode a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encode a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 53, Forssell Mica discloses wherein the code further comprises information about a transmit buffer of the apparatus (the mobile station checks in step 510, whether the

RLC block is the last one in the buffer, if it is the mobile station sets the parameter CV"= 0 means, paragraph [0068]).

For claim 54, Forssell Mica discloses wherein the code further comprises information on the additional resources needed by the apparatus (the CV' is different than 0 (information on the additional resources means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

For claim 55, Forssell Mica discloses wherein the apparatus comprises a mobile station and the network element comprises a base station of a wireless communication network (the mobile transmitted RLC/MAC data block to the network (base station means), paragraph [0061], lines 1-2).

For claim 56, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue in the apparatus, wherein the length of the data queue is embedded in a data block and the data queue is configured to receive the data block; and transmit data packets comprising a field comprising said code to a network element, wherein said code is used when allocating communication resources for a transmission between the apparatus and the network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, (paragraph [0057], lines 5-6), the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in

the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the network element as an indication of future need of communication resources in the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encode a data block. In an analogous art, Becker et al. disclose encode a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encode a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement

for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 57, Forssell Mica discloses method and arrangement for transferring real time data in a packet radio network, comprising:

a code representative of a length of a data queue in the apparatus, wherein the length of the data queue is embedded in a data block and the data queue is configured to receive the data block; and transmitting means for transmitting data packets comprising a field comprising said code to a network element, wherein said code is used when allocating communication resources for a transmission between the apparatus and the network element (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4), and

the length of the data queue is used by the network element as an indication of future need of communication resources in the apparatus (the mobile station transfer delay sensitive data to the network and the CV' is different than 0 (said code included in the data block as a field to a network element, wherein the length of the data queue is used

by the network element as an indication of future need of communication resources for the apparatus means) the network interprets that the mobile station has more data blocks to be transmitted and the network assign (allocating means) the next uplink transmit permission for the same mobile station, paragraph [0062], lines 1-3).

However, Forssell Mica does not expressly disclose encode a data block. In an analogous art, Becker et al. disclose encode a data block (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5).

One skilled in the art would have recognized the encode a data block, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to encode a 6-bit message into an 18-bit codeword encode (col. 10, lines 4-5).

For claim 58, Forssell Mica discloses wherein the monitoring further comprises monitoring a countdown value of the data block for an indication of the length of the data queue (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the

length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 59, Forssell Mica discloses wherein the controller is configured to perform the allocation based on the queue length information included in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 60, Forssell Mica discloses wherein the processor is configured to include the code representative of the queue length in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data

queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 61, Forssell Mica discloses wherein the encoding further comprises encoding the code representative of the length of the data queue in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 62, Forssell Mica discloses wherein the processor is configured to monitor a countdown value of the data block for the indication of the length of the data queue (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data

queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 63, Forssell Mica discloses wherein the controlling further comprises performing the allocation based on the queue length information included in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 64, Forssell Mica discloses wherein the encoding further comprises including the code representative of the queue length in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data

queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claim 65, Forssell Mica discloses wherein the processor is configured to encode the code representative of the length of the data queue in a countdown value of the data block (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink, paragraph [0057], lines 5-6, the RLC/MAC data block include information on whether the mobile station has more RLC data blocks to be transmitted, and this information provided to the network in the RLC/MAC header (the information or CV' value or the length of the data queue, a code representative of a length of the data queue means, wherein the means is configured to embed the length of the data queue in a data block means) and this field is called CV' (CV' may replace all or part of the CV field in the prior art), paragraph [0061], lines 1-4).

For claims 66-75, Forssell Mica discloses use the queue length information as an indication of future need of communication resources for the mobile station (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6).

However, Forssell Mica does not expressly disclose control allocation of communication resources for a mobile station. In an analogous art, Becker et al.

disclose control allocation of communication resources for a mobile station (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate appropriate system resources, col. 8, lines 10-17). Becker et al. encode a code representative of a length of a data queue embedded in a data block, and cause transmission of data packets and said data block with said code included in the data block as a field to a network element (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5 as set forth in claim 67); allocate the communications resources for a transmission between the first network element and the apparatus based on the indication (monitoring a length of a data queue means), paragraph [0057], lines 5-6 as set forth in claim 68); encode a code representative of a length of a data queue in the apparatus, and cause transmission of data packets comprising a field comprising said code to a network element (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode (a data block means) by using a look-up table, col. 10, lines 4-5 as set forth in claim 69); allocating the communications resources comprises allocating additional communications resources for the transmission between the first network element and the second network element based at least in part on the indication (the remote unit 100 transmits a message over the reserve block 140 which indicates the amount of data queued for transmission. The information concern queue length can be used by the hub station 104 to allocate

appropriate system resources, col. 8, lines 10-17 as set forth in claim 70); which it is determined that the length of the data queue exceeds the segment rate:

determining an amount of additional bandwidth required to meet one or more of a delay or a rate requirement for data to be sent by the first network element; and

wherein allocating additional communications resources comprises allocating additional communication resources based at least in part on the determined amount of additional bandwidth, col. 8, lines 10-17 as set forth in claim 71); wherein the coded value is less than a predefined value in an instance in which the length of the data queue is less than the segment rate, and wherein the coded value is at least the predefined value in an instance in which the length of the data queue exceeds the segment rate, and wherein determining whether the length of the data queue exceeds the segment rate comprises comparing the coded value to the predefined value (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6 as set forth in claim 72); wherein the code indicates whether the length of the data queue exceeds a segment rate (the Countdown Value field CV is sent by the mobile station to allow the network to calculate the number of RLC data blocks remaining for the current uplink (monitoring a length of a data queue means), paragraph [0057], lines 5-6 as set forth in claim 73); determining whether the length of the data queue exceeds the segment rate; and wherein encoding the code comprises encoding the code based at least in part on the determination of whether the length of the data queue exceeds the segment rate (monitoring a length of

a data queue means), paragraph [0057], lines 5-6 as set forth in claim 74); and in an instance in which the length of the data queue is less than the segment rate, encoding the code comprises encoding a code having a value less than a predefined value; and in an instance in which the length of the data queue exceeds the segment rate, encoding the code comprises encoding a code having a value that is at least the predefined value (in an encoder 150, the remote unit 108 encodes a 6-bit message into an 18-bit codeword encode by using a look-up table, col. 10, lines 4-5 as set forth in claim 75).

One skilled in the art would have recognized the control allocation of communication resources for a mobile station, and would have applied Becker et al.'s allocation resource in Forssell Mica's assign the next uplink transmit permission for the mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Becker et al.'s channel encoding and decoding method and apparatus in Forssell Mica's method and arrangement for transferring real time data in a packet radio network with the motivation being to allocate appropriate system resources (col. 8, line 17).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOAN D. NGUYEN whose telephone number is (571)272-3153. The examiner can normally be reached on M-F (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. D. N./

Examiner, Art Unit 2472

/Anh-Vu H Ly/

Primary Examiner, Art Unit 2472